Claims 4-6 were rejected under 35 U.S.C. § 102 (e) as being anticipated by U.S. Patent No. 6,327,622 (Jindal et al.).

Claims 4-6 were rejected under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 6,128,657 (Okanoya et al.) in view of U.S. Patent No. 6,327,622 (Jindal et al.).

These rejections are respectfully traversed and reconsideration is requested.

In accordance with the foregoing, the specification has been amended to improve form, and claim 2 has been amended.

No new matter is being presented, and approval and entry of the foregoing amendments are respectfully requested.

Claims 1-6 are pending and under consideration. Reconsideration is requested.

OBJECTIONS TO THE DRAWINGS:

In the Office Action at page 2, FIG. 9 was objected to. In view of the accompanying separate Letter to the Examiner Requesting Approval of Changes to the Drawing, correction to FIG. 9 has been requested. Therefore, the outstanding drawing objection should be resolved.

Reconsideration and withdrawal of the outstanding objections to the drawings are respectfully requested. Corrected formal drawings shall be filed upon issuance of a Notice of Allowance.

CHANGES TO THE SPECIFICATION:

The specification has been reviewed in response to this Office Action. Reference "103b" on page 20 has been corrected to read ---130b---. On page 19, line 19 and throughout the specification "forth" has been amended to read ---fourth---. On page 55, line 19, "lath" has been amended to read ---path---. The changes have been made to the specification only to place it in preferred and better U.S. form for issuance and to resolve the Examiner's objections raised in the Office Action. No new matter has been added.

REJECTION UNDER 35 U.S.C. §102:

In the Office Action at page 3, the Examiner rejected claims 1-3 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,128,657 (Okanoya et al.). This rejection is respectfully traversed and reconsideration is requested.

It is respectfully submitted that claim 1 of the present claimed invention recites: "a plurality of route load measuring units ... each measures a respective load in the route up to one client terminal having issued a request for service out of said client terminals; and a selecting unit which selects one server terminal out of said server terminals as a destination of the request...." Thus, in claim 1, the route load measuring unit measures the load in the route up to the client terminal having issued a request for service. Therefore, the relaying apparatus of the present invention selects one server terminal as a destination of the request for service based on the network load in the route from the server terminal to the client terminal. In contrast, the state management agent means disclosed by Okanoya et al. only manages the activity status of the server and does not measure the network load in the route up to the user terminal. Therefore, the load sharing system disclosed by Okanoya et al. selects one server as a destination of the request for service simply based on the status of the servers, not bases on the network load. If a server is selected simply based on the status of the servers as disclosed by Okanoya et al., the service is possibly delayed due to an uncontrollable network load between the server and the user terminal in the Internet. The present invention provides a relaying apparatus which can avoid such possible delay by selecting a server based on the network load. The measurements are made by the servers without affecting the client terminals and network traffic. Therefore, it is apparent that claim 1 contains patentable subject matter.

The dependent claims 2 and 3 depend from the above-discussed independent claim 1 and are patentable over the prior art for the reasons discussed above. The dependent claims also recite additional features not taught or suggested by the prior art. For example, claim 3 recites that, where the claimed invention of clam 1 further includes a storing unit that stores a route load measured at a pre-specified time interval by each of the route load measuring units up to the one client terminal, and when a request for service is received from the one client terminal, the selecting unit selects the one server terminal out of the server terminals as a destination of the request for service from the one client terminal based on the route load stored in the storing unit, and further, each of the route load measuring units monitors the operating states of the respective server terminal, and when a request for service is received from the one client terminal, the selecting unit selects one server terminal out of said server terminals as a destination of the request for service from the one client terminal based on the route load and the operating states monitored by said load measuring units. It is submitted that the dependent claims are independently patentable over the prior art.

Thus, it is respectfully submitted that claims 1-3 are not anticipated by U.S. Patent No. 6,128,657 (Okanoya et al.) and are allowable under 35 U.S.C. § 102 (e).

In the Office Action at page 4, the Examiner rejected claims 4-6 under 35 U.S.C. § 102 (e) as being anticipated by U.S. Patent No. 6,327,622 (Jindal et al.). This rejection is respectfully traversed and reconsideration is requested.

Claim 4 of the claimed invention recites: "...a plurality of route load measuring units...each measures a respective load in the route up to one client terminal having issued a request for service out of said client terminals..." Claim 6 of the claimed invention recites: "...a plurality of route load measuring units ... each measures a respective load in the route up to one client terminal having issued a request for service out of said client terminals and monitors the operating state of said server terminals in each group..." Thus, claims 4 and 6 of the claimed invention recite a load measuring unit which measures a respective load in the route up to a client terminal. As the Examiner points out, Jindal et al. discloses a method of distributing a request to a server farm (collection of servers) first and to a server in the server farm secondly (FIG. 3), thus teaching dividing the server terminals into several groups and selecting a secondary destination of the request for service. The Examiner contends that Jindal et al. discloses the load measuring unit which measures a respective load in the route up to a client terminal in col. 8, lines 15-18. Applicant respectfully disagrees. Only multiple pieces of information of the server are mentioned, and nothing about the network load is described in that part of Jindal et al.'s specification. Therefore, neither Jindal et al. nor Okanoya et al. (see comments above) contain any discussion or suggestion relating to distributing a request based on the network load from the server terminal to the client terminal. Therefore, it is respectfully submitted that independent claims 4 and 6 contain patentable subject matter.

The dependent claim 5 depends from the above-discussed independent claim 4 and is patentable over the prior art for the reasons discussed above. Dependent claim 5 also recites additional features not taught or suggested by the prior art in that claim 5 recites that each of the route load measuring units monitors the operating stats of respective server terminal and selects one server terminal out of the several server terminals in the group based on the operating states when selecting a secondary destination of the request for service from the client terminal. It is submitted that dependent claim 5 is independently patentable over the prior art.

Thus, it is respectfully submitted that claims 4-6 are not anticipated by U.S. Patent No. 6,327,622 (Jindal et al.) and are allowable under 35 U.S.C. § 102 (e).

REJECTION UNDER 35 U.S.C. §103:

In the Office Action at page 6, the Examiner rejected claims 4-6 under 35 U.S.C. §103 in view of U.S. Patent No. 6,128,657 (Okanoya et al.) in view of U.S. Patent No. 6,327,622 (Jindal et al.). The rejection is respectfully traversed and reconsideration is requested.

Claim 4 of the claimed invention teaches dividing the server terminals into several groups and selecting a server terminal as a secondary destination: "...wherein said one route load measuring unit selects one server terminal out of the several server terminals in the group as a secondary destination of the request for service from said one client terminal." Similarly, claim 6 of the claimed invention teaches such a division of server terminals: "...wherein said one route load measuring unit selects based on the operating state one server terminal out of the several server terminals in the group as a secondary destination of the request for service from said one client terminal." As pointed out by the Examiner, Okanoya et al. fails to teach dividing the server terminals into several groups and selecting one of the server terminals as a secondary destination of the request for service. Though Jindal et al. teaches dividing the server terminals into several groups and selecting a secondary destination of the request for service, Jindal et al. fails to teach the load measuring unit which measures a respective load in the route up to a client terminal. There is no teaching or suggestion that Jindal et al. and Okanoya et al. be combined. It is respectfully submitted that the courts have held that the Examiner may not suggest modifying references using the present invention as a template absent a suggestion of the desirability of the modification in the prior art (*In re Fitch*, 23 U.S.P.Q.2d 1780, Fed Cir. 1992). Thus, it is respectfully submitted that independent claims 4 and 6 are allowable under 35 U.S.C. § 103 over Okanoya et al in view of Jindal et al. Since claim 5 depends from independent claim 4, it is respectfully submitted that claim 5 is allowable under 35 U.S.C. § 103 over Okanoya et al in view of Jindal et al. for the same reasons that claim 4 is allowable.

Hence it is respectfully submitted that claims 4-6 under 35 U.S.C. §103 in view of U.S. Patent No. 6,128,657 (Okanoya et al.) in view of U.S. Patent No. 6,327,622 (Jindal et al.).

ATTACHMENT

Attached hereto is a "Version With Markings to Show Changes Made," comprising a marked-up version of changes made to the Specification and Claims by the current amendment.

CONCLUSION:

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In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, it is respectfully submitted that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any additional fees associated with the filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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VERSION WITH MARKING TO SHOW CHANGES MADE

IN THE SPECIFICATION

Please REPLACE the paragraph on lines 18-20 on page 19 with the following paragraph:

--- Fig. 7 shows the general configuration of a relaying apparatus for use in a network system according to a [forth] fourth embodiment of the present invention;---

Please REPLACE the paragraph on lines 21-23 on page 19 with the following paragraph:

---Fig. 8 shows the configuration and the operations of the relaying apparatus for use in a network system according to the [forth] fourth embodiment; and---

Please REPLACE the paragraph on lines 6-13 on page 20 with the following paragraph:

--- Fig. 1 shows a relaying apparatus for use in a network system according to a first embodiment of the present invention. As shown in this figure, a client terminal 100, client-side DNS device 110, a DNS responding device 120, path load measuring devices 130a and [103b] 130b, server terminals, 140a and 140b are connected to a network (such as the Internet) including a plurality of routers not shown herein, and are accessible discretely.---

Please REPLACE the paragraph on lines 11-20 on page 47 with the following paragraph:

--- Fig. 7 is a block diagram showing configuration of a relaying apparatus for use in a network system according to a [forth] fourth embodiment of-the present invention. In this figure, the same reference numerals are assigned to components corresponding to those in Fig. 4, and detailed description thereof is omitted herein. In Fig. 7, in place of the D NS responding device 300, path load measuring device 400a, and path load measuring device 400b, a DNS responding device 600, path load measuring device 700a, and path load measuring device 700b are respectively provided.---

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Please REPLACE the paragraph on lines 14-21 on page 54 with the following paragraph:

--- Operations of the relaying apparatus for use in a network system according to the [forth] fourth embodiment are explained with reference to the flow chart shown in Fig. 8. It is assumed in the following description that information indicating occurrence of a DNS inquiry form the client terminal 100 to the DNS responding device 600 in the past, namely an IP address of the client terminal 100 is already stored as DNS inquiry log in the storing section 170 shown in Fig. 8.---

Please REPLACE the paragraph on lines 19-23 on page 55 with the following paragraph:

--- The path load measuring device 700a also measures the [lath] path load (effective band width) in a communication path with the client terminal 100, and the result of is transmitted to the path load measurement request information preparing section 620.---

Please REPLACE the paragraph on line 22 of page 59 through line 5 of page 60 with the following paragraph:

--- As described above, with the relaying apparatus for use in a network system according to the [forth] fourth embodiment, a primary destination of routing a service request is selected according to a reference of a path load reflecting the actual situation and an operating state, and then either one of the server terminal 500a to server terminal 500d is selected taking into account the operating state in secondary routing. Therefore, distribution of a work load among a plurality of server terminals can be executed in the-optimal state.---

Please REPLACE the paragraph on lines 6-11 on page 60 with the following paragraph:

--- Relaying apparatuses each for use in a network system according to first to [forth] fourth embodiments of the present invention are explained above. However, the configuration of

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the present invention is not limited to these embodiments. Design changes within a gist of the

present invention can be included in the present invention.---

Please REPLACE the paragraph on lines 12-16 on page 60 with the following paragraph:
--- For instance, in the relaying apparatuses for use in the network system according to

first to [forth] fourth embodiments described above, a server terminal as an object for accessing

indicates all databases, which users want to access, and all server computers on the network

providing the Web service.---

Please REPLACE the paragraph on lines 17-21 on page 60 with the following paragraph:
--- In the relaying apparatuses each for use in a network system according to first to .

[forth] fourth embodiments described above, terminals inquiring DNS include, in addition to the

client terminal 100, DNS servers (Fig. 1: client-side DNS device 110) provided in the vicinity of

the client terminal 100.---

Please REPLACE the paragraph on line 22 of page 60 through line 1 of page 61 with the

following paragraph:
--- Further in the relaying apparatuses for use in a network system according to first to

[forth] fourth embodiments described above, routing may be carried out taking into account, in

addition to the effective band width, a combination of other parameters such as round-trip time,

number of hops, or the like as path load.---

IN THE CLAIMS

Please **AMEND** claim 2, as follows. The remaining claims are reprinted, as a

convenience to the Examiner, as they presently stand before the U.S. Patent and Trademark

Office.]

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1.   (UNAMENDED) A relaying apparatus for use in a network system, which network system is formed with a plurality of client terminals and server terminals providing services to those client terminals via a network, comprising:

a plurality of route load measuring units each provided in the vicinity of each of said server terminals and each measures a respective load in the route up to one client terminal having issued a request for service out 'of said client terminals; and

a selecting unit which selects one server terminal out of said server terminals as a destination of the request for service from said one client terminal based on the route load measured by said route load measuring units.

2.   (ONCE AMENDED)   The relaying apparatus for [used] use in a network system according to Claim 1 further comprises a storing unit which [store] stores a route load measured at a pre-specified time interval by each of said route load measuring units up to said one client terminal; and

when a request for service is received from said one client terminal, said selecting unit selects said one server terminal out of said server terminals as a destination of the request for service from said one client terminal based on the route load stored in the storing unit.

3.   (UNAMENDED) The relaying apparatus for use in a network system according to Claim 2; wherein each of said route load measuring units monitors the operating states of respective server terminal; and

when a request for service is received from said one client terminal, said selecting unit selects one server terminal out of said server terminals as a destination of the request for service from said one client terminal based on the route load and the operating states monitored by said load measuring units.

4.   (UNAMENDED) A relaying apparatus for use in a network system, which network system is formed with a plurality of client terminals and server terminals divided into several groups providing services to those client terminals via a network, comprising:

a plurality of route load measuring units each provided with respect to each of the groups and each measures a respective load in the route up to one client terminal having issued a request for service out of said client terminals; and

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a selecting unit which selects one route load measuring units out of said route load measuring units as a primary destination of the request for service from said one client terminal based on the route load measured by said route load measuring units; wherein said one route load measuring unit selects one server terminal out of the several server terminals in the group as a secondary destination of the request for service from said one client terminal.

5.   (UNAMENDED) The relaying apparatus for us6 in a network system according to Claim 4; wherein each said route load measuring units monitors the operating states of respective server terminal; and said one route load measuring unit select one server terminal out of the several server terminals in the group based on the operating states when selecting a secondary destination of the request for service from said one client terminal.

6.   (UNAMENDED) A relaying apparatus for use in a network system, which network system is formed with a plurality of client terminals and server terminals divided into several groups providing services to those client terminals via a network, comprising:
a plurality of route load measuring units each provided with respect to each of the groups, each measures a respective load in the route up to one client terminal having issued a request for service out of said client terminals and monitors the operating state of said server terminals in each group; and
a selecting unit which selects one route load measuring units out of said route load measuring units as a primary destination of the request for service from said one client terminal based on the route load measured and operating state monitored by said route load measuring units; wherein said one route load measuring unit selects based on the operating state one server terminal out of the several server terminals in the group as a secondary destination of the request for service from said one client terminal.